

Treatment Option Case Study - Hawaii

(proposed management system)

Conservation Effects Worksheet

Cropland - Sugarcane
(land use and crop)

Resource Setting: Kauai, Hawaii

Soils - Kapaa silty clay

Rainfall 74 inches

Elevation - 360 feet

Unique situation - field located on ridge top next to stream and Kapaia reservoir is located above the field.

Conservation Treatment Results:

Harvested within a window of time when chances of intense rains are less likely to happen (5/14 to 10/1). In preparation to plant only subsoil, disc and harrow areas which were used as loading areas in field for the cane haul trucks. Use no-till methods of planting on rest of field. Plant across the general lay of the land. Allow the volunteer crop to establish to control erosion the first couple months when sugarcane has not established yet. Irrigate field from reservoir -drip irrigate.

Resource Problems Before Treatment:

Erosion is a problem; this is a highly erodible field. The field is close to a reservoir and stream. May have nutrient and herbicide problems.

ACTIONS (Kinds, Amounts, Timing)	EFFECTS (Effects of Continuing Bench System)
Field Preparation	
<p>Subsoil, disc, and harrow only areas of field where large cane haul trucks compacted soil in field.</p> <p>No-till plant the seed pieces of sugarcane</p> <p>Band Calcium Metasilicate</p> <ul style="list-style-type: none"> - Hawaii Cement CaSiO₃ - Hawaiian Western Steel Slag <p>Scheduled Harvesting - arrange to harvest and plant the sugarcane between the months of 4/15 to 10/1.</p>	<p>Do this cross slope</p> <p>Reduces fuel and time in preparing a field for planting</p> <p>Do this cross slope</p> <p>Develop a no-till seeder which will allow for breaking up the soil, preparing a seedbed and planting the sugarcane.</p> <p>Cut down use of Calcium Metasilicate; less pounds needed per acre. Deliver to areas which are in root zone directly</p> <p>May have to go a couple of cropping cycles to get the field into the scheduled harvesting window of time.</p> <p>If you have many fields, which have scheduled harvesting, you may not be able to do all of them in the window of time.</p>
Planting	
<p>Fertilizer</p> <p>Urea (46-0-0) applied in a band at planting.</p> <p>Ammonium phosphate (11-52-0) is applied in a band at planting</p> <p>Calcium Metasilicate is also applied in band</p> <p>Pieces of sugarcane treated with fungicide. (Tilt used at 0.006 gals/acre)</p>	<p>Minimum amount of fertilizer is applied.</p> <p>Fertilizer is placed directly where it is readily available to plants</p> <p>Small amount of Tilt used. Only problem would be if vats used to dip seed pieces spill or leak.</p>

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ACTIONS (Kinds, Amounts, Timing)	EFFECTS (Effects of Continuing Bench System)
<p>Herbicide and fertilizer is applied every 4 to 6 weeks</p> <p>Irrigation</p> <p>Drip irrigation will be established in the field. - Drip tubing will follow the plant lines across the slope to make irrigation water distribution efficient</p>	<p>Irrigation will enable quicker establishment of sugarcane and quicker sugarcane cover.</p> <p>The sugarcane will establish in a more uniform manner.</p> <p>It will be expensive to install but the increase in yield will justify the cost of irrigation and it will pay for itself.</p> <p>It may be bad because it will leach chemicals into the ground faster</p>
Pest Management	
<p>Pest Management (595)</p> <ul style="list-style-type: none"> - Use biological control on insects 	<p>Good Practice.</p>
Rodent Control	
<p>Rodenticides are applied at 20 lbs/ac/crop cycle.</p> <p>They are applied when the sugarcane is:</p> <ul style="list-style-type: none"> - 9 months old - 12 months old - 18 months <p>Rodenticides used</p> <ul style="list-style-type: none"> - ZINC PHOSPHIDE - 10 lbs/ac - PIVAL (spot applications) - ?? lbs/ac 	<p>Rodenticides getting into the water bodies.</p> <p>Other animals besides the rats eat the rodenticide</p> <p>Other animals eat the poisoned rats</p>
Ripening the Sugarcane	
<p>Growth regulators used</p> <ul style="list-style-type: none"> - POLADO - 1lb./acre - ETHREL - 1lb./acre 	<p>Usually applied by aircraft, may drift into water bodies</p>

ACTIONS (Kinds, Amounts, Timing)	EFFECTS (Effects of Continuing Bench System)
Harvesting	
<p>Burn excess dry leaves</p> <p>Push rake used to push sugarcane into windrow for easier harvesting</p> <p>Load cane on truck</p> <p>Haul cane to mill</p> <p>Work towards harvesting within the scheduled harvesting window.</p>	<p>Smoke can become a problem</p> <p>Push soil into wind rows also</p> <p>Destruction of soil structure when heavy trucks come into field</p> <p>Carries lots of soil to the mill; especially when harvesting during wet weather</p>
<p>Comments:</p> <p>Attempts should be made to look into the feasibility of ratoon or mechanical harvesting cane to reduce soil loss due to harvesting operation</p>	